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STANDARD FORM NO. 64

FILE COPY LGL-1-7 1557

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TO : Files **DATE:** Oct. 29, 1954

FROM : W. K. Coulter

SUBJECT: RX-NW-INSECT SURVEY PROGRAM - Trend of the spruce budworm infestation on five potential control units as indicated by accumulated records of defoliation and egg counts - October 1954.

For the past several years biological studies have been made annually on the Ochoco, Powder River, and Chesnimnus spruce budworm infestation. Data are available from these studies which show the current trend of the infestation on each area. In October 1954, a budworm egg survey was made on the Eagle Creek and Malheur infestations to sample the population going into hibernation. All of these data are tabulated below with the average annual defoliation on each area since 1950.

Potential Control Unit	Area Sampled	Year	Trend of Damage: Average Defoliation	Trend of Damage: Egg Masses Per Sample
OCHOCO	Ochoco Summit	1950	Moderate	-
		1951	Moderate	-
		1952	Light	5.9
		1953	Light	8.0
		1954	Moderate	23.7
POWDER RIVER	Antone Creek	1950	None	-
		1951	Light	0.9
		1952	Light	0.1
		1953	Moderate	3.2
		1954	Heavy	5.9
CHESNIMNUS	Cold Springs	1950	Light	-
		1951	Light	4.1
		1952	Moderate	13.5
		1953	Heavy	9.8
		1954	Light	17.1
EAGLE CREEK	West Fork	1950	Moderate	-
		1951	Moderate	-
		1952	Moderate	-
		1953	Heavy	-
		1954	Heavy	42.4
MALHEUR	Long Creek	1950	Moderate	-
		1951	Light	-
		1952	Heavy	-
		1953	Heavy	-
		1954	Heavy	46.0

The average defoliation for each year was obtained from the records of the annual aerial reconnaissance survey.

The egg population data was obtained by standardized egg sampling methods. The branch was the major sampling unit and two or more branches were taken from mid-crown of representative dominant and codominant trees. The egg masses on the branches were counted and recorded as the average number of egg masses per branch.

The egg population data is mainly a measure of trend and should not be considered as an actual measure of the existing population during any one year. Furthermore the relationship of the number of egg masses to the subsequent severity of defoliation is not constant. This relationship may be altered by abnormal natural mortalities in the early stages of budworm development and by the vigor of the attacked trees.

OCHOCO. The trend is definitely toward increased defoliation and larger budworm populations.

POWDER RIVER. The trend is toward increased defoliation and larger budworm populations. The relatively low egg count for this infestation in relative to the defoliation is a reflection of the location of the study area rather than a low natural mortality or a condition of the host trees. The study area in this infestation was established in 1951 when the infestation was light. As the infestation increased in severity it began to slowly spread through the study area. At the present time the study area traverses the boundary of the area of heavy infestation.

CHESNIMNUS. The trend of the infestation on this area is uncertain. Damage has been variable for several years. In some localities relatively heavy damage has built up and then suddenly subsided from unknown causes. While some portion of this area has suffered top killing and tree mortality from accumulated defoliation the general trend for the entire infested area is unpredictable from the data available.

EAGLE CREEK. Records of the defoliation on this area indicate a trend toward increasing damage. The egg survey of this year has shown that a very large population of budworm went into hibernation. If this population follows the usual cause of development, the trend is toward severe damage.

MALHEUR. The situation in this area is similar to that on the Eagle Creek infestation. The trend of the defoliation is toward increasing damage. The egg survey showed an even greater population of budworm in hibernation. Severe damage is the indicated trend.

H K Coulter